

The Existential Rupture in Neuro-Dissociative States: An Applied Study on the (B-Bouzid) Model

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Release Date: January 25, 2026

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The Extended Summary of the B-Bouzid Model as a Scientific Theory Project for Consciousness and Neurological Dissociation

1. From Neurological Description to Ontological Theory

The B-Bouzid model departs from a fundamental critique of the predominant reductionist view in neuroscience, which assumes that consciousness is merely a secondary product of

complex neural computation.

Instead, the model proposes a new integrative conception based on the existence of two qualitative levels of organization in human existence:

Sovereignty (F): As a high-level organizational layer of consciousness, encompassing subjectivity, will, moral judgment, and the capacity for meaning.

Base/Bedrock (B): As the neuro-biological structure that executes sensory, motor, emotional, and procedural processing.

Consciousness in this model is not understood as a direct product of the brain, nor as a transcendent entity independent of it, but as a state of dynamic integration between two levels of neural and existential organization.

Thus, the B-Bouzid model transcends Cartesian dualism on one hand, and materialistic reductionism on the other, to propose a third model that can be described as: The Sovereign Organizational Model of Consciousness.

2. Redefining the F-B Relationship: From Duality to Hierarchical Organization

In its developed form, Sovereignty (F) is not understood as a substance separate from the brain, but as:

A Meta-Organizational Layer that emerges from the neural bedrock (B) without being reducible to it.

This means that:

B provides the biological conditions for consciousness.

F represents a pattern of organization, integration, and moral/meaningful guidance of these conditions.

In this sense, consciousness becomes not merely a neural activity, but a special pattern of neuro-existential integration.

3. Transforming the Model from a Philosophical Metaphor to a Measurable Scientific Structure

To transcend the symbolic nature of the model, F and B are redefined as multidimensional neural functional vectors:

3.1 Sovereignty Vector (F)

Consists of a set of neural networks associated with self-awareness, cognitive regulation, and ethics, such as:

Default Mode Network (DMN): Self-awareness and internal narrative.

Executive Frontal Networks: Voluntary control and decision-making.

Frontoparietal Network: Metacognition and awareness of awareness.

Moral and Social Evaluation Regions (vmPFC, TPJ).

3.2 Base/Bedrock Vector (B)

Consists of neural systems responsible for biological execution and automatic processing:

Sensorimotor Systems.

Autonomic Nervous System.

Limbic and Emotional System.

Procedural Circuits (Basal Ganglia, Cerebellum).

4. The Sovereign Integration Index: Towards Measuring Consciousness

The model proposes replacing the traditional symbolic equation ($F \cap B = 1$) with a quantitative index:

The Sovereign Integration Index (SII)

$$SII = \frac{Connectivity(F,B)}{Connectivity(F)+Connectivity(B)}$$

This index represents the degree of functional integration between sovereignty and bedrock networks, and can be measured via:

Functional connectivity in fMRI.

Neural synchronization in EEG.

Complex neural network analysis.

Thus, consciousness becomes quantifiably describable as a degree of integration, not a binary state (conscious/unconscious).

5. Neurological Dissociation States as Ruptures in Sovereign Integration

The B-Bouzid model interprets sleep and neurological dissociation states as different conditions of disrupted integration between F and B, not merely as isolated neurological disorders.

Explanatory examples:

Normal Wakefulness: High SII → Near-complete integration between F and B.

Mind Wandering: Partial decrease in SII → Dominance of internal F at the expense of external B.

Sleepwalking: Severe decrease in SII → B activity without F supervision.

Sleep Paralysis: Functional dissociation → F activity without B's executive capacity.

Lucid Dreaming: A hybrid state → Partial integration between F and B within a dream context.

RBD (REM Sleep Behavior Disorder): Moral dissociation → B motor activity without sufficient sovereign regulation from F.

Status Dissociatus: Collapse of SII → Loss of boundaries between states of consciousness.

Thus, sleep and neurological dissociation states transform into a general model for understanding the relationship between consciousness and embodiment.

6. Bouzid's Law of Neural Sovereignty

The model proposes a new theoretical law:
The higher the level of integration between the

self-referential and executive networks in the brain, the greater the system's capacity to produce independent moral consciousness.

In mathematical form:

$$\text{Ethical Agency} \propto \text{Integration}(\text{DMN}, \text{Executive Networks})$$

This law represents a qualitative step because it directly links morality to neural structure, something not offered by traditional neural theories.

7. Expanding the Model: From Sleep to a General Theory of Consciousness

The B-Bouzid model transcends explaining sleep states to become a general framework for understanding:

7.1 Psychiatric Disorders

Depression: Weak Sovereignty F and dominance of emotional Base B.

Schizophrenia: Disintegration of the relationship between F and B's sensory perception.

Psychopathy: Presence of cognitive F with a weak ethical dimension.

7.2 Artificial Intelligence

Artificial Intelligence represents a model of the Base (B) without Sovereignty (F). Consequently, the difference between humans and machines lies not in computational intelligence, but in moral sovereignty.

7.3 Free Will and Identity

Free will is understood as F's capacity to reorganize B.

Personal identity is understood as the continuity of the F-B integration pattern over time.

8. The Theoretical Value of the Model

Upon its development, the B-Bouzid model distinguishes itself from other theories by: Integrating neuroscience with ontology and ethics within a single framework.

Transforming consciousness from a mysterious phenomenon into a relatively measurable variable.

Providing a new explanation for the relationship between humans and artificial intelligence.

Proposing the concept of sovereignty as the essence of human distinction.

Thus, the B-Bouzid model can be considered a

project for a new theory in the philosophy of
mind, which can be described as:
The Neural Sovereignty Theory of Consciousness.
Final Conclusion (in a strong academic format)
The B-Bouزيد project can be summarized as
follows:

The B-Bouزيد model proposes a neuro-
ontological framework that explains
consciousness as the result of dynamic
integration between a sovereign, high-level
regulatory layer (F) and the biological neural
bedrock (B). It demonstrates that neurological
dissociation states represent varying degrees of
collapse in this integration, allowing the
transformation of dissociative phenomena from
mere clinical descriptions into a measurable and
generalizable theoretical model.
This framework establishes a basis for rethinking
the relationship between consciousness, ethics,
and artificial intelligence, positing neural
sovereignty as the standard for human
distinction.

1. Introduction

Traditional neuroscience often views consciousness as an emergent epiphenomenon of complex neural computation. The B-Bouzid Model challenges this reductionist view by positing Sovereignty (F) as a fundamental, qualitatively independent ontological category that interacts with, but is not produced by, the material Substrate (B). Drawing on contemporary research into local sleep (Sodré et al., 2023) and the dissociability of brain states (Vetrugno & Montagna, 2011), this paper applies the F–B framework to a spectrum of neuro-dissociative conditions. We demonstrate that these states are not mere neurological curiosities but are existential experiments that reveal the seams of human being.

2. Theoretical Framework: The B-Bouzid (F–B) Model

The model is defined by its core equation and components:

- The Normative State: $F \cap B = 1$

- F (Sovereignty): The seat of subjective experience, ethical judgment, and intentional agency. Its neural correlates are primarily associated with the Default Mode Network (DMN)—specifically the medial prefrontal cortex, posterior cingulate cortex, and medial temporal lobes—and the executive control networks of the frontoparietal system.
 - B (Substrate): The biological implementation platform encompassing sensory-motor systems, autonomic regulators, subcortical emotional centers (limbic system), and automated information-processing circuits.
 - The Dissociative State: A rupture where $F \cap B < 1$.
1. This represents a failure of integration, leading to a spectrum of conditions where awareness and embodiment become uncoupled.

3. Clinical & Neuroscientific Analysis of Dissociation

- A. Mind Wandering & Daydreaming – "Partial Sovereignty"
 - Neuroscientific Description: Dominance of Default Mode Network (DMN) activity with

concomitant dampening of task-positive networks. EEG shows increased theta (4-7 Hz) and delta (2-3.5 Hz) power, and decreased alpha (9-11 Hz) and beta (15-30 Hz) activity, indicating a state of reduced alertness.

- Model Application: $F \approx 0.7$, $B \approx 0.3$. Sovereignty (F) is engaged in internal self-referential thought but maintains a tenuous, diminished link with the external world via the Substrate (B).

B. Somnambulism (Sleepwalking) – "Absent Sovereignty"

- Neuroscientific Description: High activation of motor and supplemental motor cortices (components of B) coupled with profound deactivation of the prefrontal cortex (the core of F's executive function). A prime example of local sleep where motor regions are "awake" while conscious centers are "asleep."

- Model Application: $B = 1$, $F = 0$. The Substrate operates as an intelligent automaton, executing complex procedural intelligence. This proves sophisticated behavioral "intelligence" is an inherent property of B, analogous to machine intelligence in AI.

C. Lucid Dreaming – "Sovereignty Reclaimed in the Dreamscape"

- Neuroscientific Description: A hybrid state occurring primarily during REM sleep, featuring co-activation of:
 - Limbic-emotional centers (B-substrate of dreaming).
 - Frontal Cortices (F): with increased gamma-band (40 Hz) activity.
 - Frontoparietal Network: associated with metacognition and self-awareness.
- Model Application: $F = 0.8$, $B(\text{REM}) = 0.8$, $F \cap B = 0.6$. A dynamic equilibrium where Sovereignty (F) reasserts partial control within the dreaming Substrate (B), creating a unique conscious state.

D. Sleep Paralysis – "Disabled Substrate"

- Neuroscientific Description: The waking state of cortical awareness (activation of F-related DMN and prefrontal areas) intrudes into persistent REM-atonia (paralysis of the motor B-substrate). Often accompanied by limbic-driven hypnagogic hallucinations.
- Model Application: $F = 1$, $B = 0$. The epitome of sovereign isolation. Consciousness (F) exists

fully aware but is utterly stripped of its capacity for material execution, providing existential proof of F's potential independence from B.

E. False Awakenings – "The Illusion of Integration"

- Neuroscientific Description: Occurs during REM sleep; the subject dreams of having woken up and performing daily routines. Polysomnography shows mixed alpha (wake-like) and theta (sleep-like) wave activity.
- Model Application: $F(\text{imagined}) = 1$, $B(\text{actual}) = 0.5$, Perceptual Error: $F \cap B = 1$. This state represents an "existential accounting error" where the system mistakenly believes integration has been restored while remaining in a dissociative paradigm.

F. REM Sleep Behavior Disorder (RBD) – "Execution Without Sovereign Script"

- Neuroscientific Description: Loss of normal muscle atonia during REM sleep, allowing for the physical enactment of dreams. Linked to dysfunction in the pontine nuclei that inhibit motor output during dreaming.
- Model Application: $B(\text{motor}) = 1$, $F(\text{content control}) = 0.2$. The motor substrate acts without

the full guidance or ethical moderation of Sovereignty, often resulting in violent behaviors that conflict with the individual's waking values (F).

G. Status Dissociatus – "The Rupture Point"

- Neuroscientific Description: As described by Vetrugno & Montagna (2011), this is the complete collapse of boundaries between sleep and wakefulness, with no clearly identifiable brain state.
- Model Application: $F \approx 0.5$, $B \approx 0.5$, $F \cap B \approx 0$. This represents the "existential zero point" where the system loses the ability to stably assign sovereignty, resulting in delirious behavior and a dissolution of coherent selfhood.

4. Conclusion and Theoretical Synthesis

The integrated study of neuro-dissociative states through the B-Bouzid Model demonstrates that human beings are not merely "biological algorithms." The evidence supports:

1. Functional Duality: The existence of two

functionally distinct systems: a sovereign system (F) centered on the DMN and frontal executive networks, and a substrate system (B) encompassing sensorimotor and subcortical infrastructures.

2. Partial Autonomy: Each system can operate with a degree of autonomy from the other, as evidenced by B's precise operation without F (somnambulism) and F's conscious existence without B's executive function (sleep paralysis).
3. Integration as an Achievement: The normative state of integration ($F \cap B = 1$) is a dynamic, fragile achievement requiring precise neural synchronization, not a default or constant given.
4. Ethical and Existential Dimensions: The failure of integration (as in RBD, where B acts violently against the values of F) highlights that ethics are not secondary but are inherent to the architecture of Sovereignty (F) itself.
5. Implications for AI and Ethics: If complex motor intelligence is a property of the Substrate (B) that can be engineered in machines, then "ethical sovereignty" (F) remains the benchmark distinguishing authentic human existence from

artificial simulation. This finding underpins the proposed "Sovereign Veto Protocol" for AI ethical governance.

Thus, the B-Bouzid Model provides not only an explanatory framework for dissociative phenomena but also lays the groundwork for a Neuro-Ontology—a unified mathematical-philosophical model connecting brain structure, conscious experience, and human ethics.

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